



PATENT

Docket No. E-1901



Box Patent Application
Commissioner of Patents and Trademarks
Washington, D.C. 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of
 Inventor(s):

JAMES W. KENNEY

WARNING: Patent must be applied for in the name(s) of all of the actual inventor(s). 37 CFR 1.41(a) and 1.53(b).

For (title):

PIPPETTE GUN AND HOLSTER ASSEMBLY

1. Type of Application

This new application is for a(n) (check one applicable item below):

- ☒ Original
☐ Design
☐ Plant

WARNING: Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. 371(c)(4) unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

NOTE: If one of the following 3 items apply then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED.

- ☐ Divisional
☐ Continuation
☐ Continuation-in-part (CIP)

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this New Application Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service on this date MAY 28, 1999 in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EE691886990US addressed to the: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

JOSEPH M. KONIECZNY

(Type or print name of person mailing paper)

Joseph M. Konieczny
 (Signature of person mailing paper)

NOTE: Each paper or fee referred to as enclosed herein has the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 CFR 1.10(b).

2. Benefit of Prior U.S. Application(s) (35 USC 120)

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., then check the following item and complete and attach **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED**.

- ☐ The new application being transmitted claims the benefit of prior U.S. application(s) and enclosed are **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED**.

3. Papers Enclosed Which Are Required For Filing Date Under 37 CFR 1.53(b) (Regular) or 37 CFR 1.153 (Design) Application

16 Pages of specification

9 Pages of claims

2 Pages of Abstract

4 Sheets of drawing

☐ formal

☐ informal

WARNING: DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. **Only one copy is required or desired.** Comments on proposed new 37 CFR 1.84. Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia such as the serial number, group and unit, title of the invention, attorney's docket number, inventor's name, number of sheets, etc., not to exceed 2¾ inches (7.0 cm.) in width may be placed in a centered location between the side edges within three fourths inch (19.1 mm.) of the top edge. Either this marking technique on the front of the drawing or the placement, although not preferred, of this information and the title of the invention on the back of the drawings is acceptable." Proposed 37 CFR 1.84(j). Notice of March 9, 1988 (1990 O.G. 57-62).

4. Additional papers enclosed

- ☐ Preliminary Amendment
- ☐ Information Disclosure Statement
- ☐ Form PTO-1449
- ☐ Citations
- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

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5. Declaration or oath☒ Enclosedexecuted by (*check all applicable boxes*)☒ inventor(s).☐ legal representative of inventor(s). 37 CFR 1.42 or 1.43☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.☐ this is the petition required by 37 CFR 1.47 and the statement required by 37 CFR 1.47 is also attached. *See item 13 below for fee.*☐ Not Enclosed.

WARNING: Where the filing is a completion in the U.S. of an International Application but where a declaration is not available or where the completion of the U.S. application contains subject matter in addition to the International Application the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

☐ Application is made by a person authorized under 37 CFR 1.41(c) on behalf of all the above named inventor(s). The declaration or oath, along with the surcharge required by 37 CFR 1.16(e) can be filed subsequently.

NOTE: It is important that all the correct inventor(s) are named for filing under 37 CFR 1.41(c) and 1.53(b).

☐ Showing that the filing is authorized. (Not required unless called into question. 37 CFR 1.41(d).)**6. Inventorship Statement**

WARNING: If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the **last** claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

☒ The same

or

☐ Are not the same. An explanation, including the ownership of the various claims at the time the **last** claimed invention was made,☐ is submitted.☐ will be submitted.**7. Language**

NOTE: An application including a signed oath or declaration may be filed in a language other than English. A verified English translation of the non-English language application and the processing fee of \$30.00 required by 37 CFR 1.17(k) is required to be filed with the application or within such time as may be set by the Office. 37 CFR 1.52(d).

NOTE: A non-English oath or declaration in the form provided or approved by the PTO need not be translated. 37 CFR 1.69(b).

☒ English☐ non-English☐ the attached translation is a verified translation. 37 CFR 1.52(d).

8. Assignment

☒ An assignment of the invention to DRUMMOND SCIENTIFIC COMPANY

☒ is attached.

☐ will follow.

NOTE: "If an assignment is submitted with a new application, send two separate letters—one for the application and one for the assignment." Notice of May 4, 1990 (1114 D.G. 77-78).

9. Certified Copy

Certified copy(ies) of application(s)

(country)	(appln. no.)	(filed)
(country)	(appln. no.)	(filed)
(country)	(appln. no.)	(filed)

from which priority is claimed

☐ is(are) attached. A separate "ASSIGNMENT COVER LETTER ACCOMPANYING NEW PATENT APPLICATION" is also attached.

☐ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 CFR 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. 120 is itself entitled to priority from a prior foreign application then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 CFR 1.16)

A. ☒ Regular application

CLAIMS AS FILED			
Number filed	Number Extra	Rate	Basic Fee \$ 760.00
Total Claims 37 CFR 1.16(c) $34-20=$	14	X \$ 18.00	252.00
Independent Claims (37 CFR 1.16(b)) $4-3=$	1	X \$ 78.00	78.00
Multiple dependent claim(s), if any (37 CFR 1.16(d))		\$200.00	

☐ Amendment cancelling extra claims enclosed.

☐ Amendment deleting multiple-dependencies enclosed.

☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 CFR 1.16(d).

Filing Fee Calculation \$ 1090.00

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B. ☐ Design application

(\$250.00—37 CFR 1.16(f))

Filing Fee Calculation

\$ _____

C. ☐ Plant application

(\$420.00—37 CFR 1.16(g))

Filing fee calculation

\$ _____

11. Small Entity Statement(s)

- ☒ Verified Statement(s) that this is a filing by a small entity under 37 CFR 1.9 and 1.27 is(are) attached.

Filing Fee Calculation (50% of A, B or C above)

\$ 545.00

NOTE: Any excess of the full fee paid will be refunded if a verified statement and a refund request are filed within 2 months of the date of timely payment of a full fee. 37 CFR 1.28(a).

12. Request for International-Type Search (37 CFR 1.104(d)) (complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

13. Fee Payment Being Made At This Time

- ☐ Not Enclosed

- ☐ No filing fee is to be paid at this time. (This and the surcharge required by 37 CFR 1.16(e) can be paid subsequently.)

- ☒ Enclosed

- ☒ basic filing fee

\$ 545.00

- ☒ recording assignment
(\$8.00; 37 CFR 1.21(h))

\$ 40.00

- ☐ petition fee for filing by other than all the inventors or person on behalf of the inventor where inventor refused to sign or cannot be reached. (\$120.00; 37 CFR 1.47 and 1.17(h))

\$ _____

- ☐ for processing an application with a specification in a non-English language. (\$30.00; 37 CFR 1.52(d) and 1.17(k))

\$ _____

- ☐ processing and retention fee
(\$120.00; 37 CFR 1.53(d) and 1.21(l))

- ☐ fee for international-type search report (\$30.00; 37 CFR 1.21(e)).

\$ _____

NOTE: 37 CFR 1.21(l) establishes a fee for processing and retaining any application which is abandoned for failing to complete the application pursuant to 37 CFR 1.53(d) and this, as well as the changes to 37 CFR 1.53 and 1.78, indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid or the processing and retention fee of § 1.21(l) must be paid within 1 year from notification under § 53(d).

Total fees enclosed\$ 585.00

14. Method of Payment of Fees

- ☒ Check in the amount of \$ 545.00 (FILING FEE) AND \$40.00 (ASSIGNMENT)
☐ Charge Account No. _____ in the amount of \$_____. A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 CFR 1.22(b).

15. Authorization to Charge Additional Fees

WARNING: If no fees are to be paid on filing the following items should not be completed.

WARNING: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

- ☒ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 05-0208:
- ☒ 37 CFR 1.16(a), (f) or (g) (filing fees)
☒ 37 CFR 1.16(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 CFR 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

- ☒ 37 CFR 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)
☒ 37 CFR 1.17 (application processing fees)

WARNING: While 37 CFR 1.17(a), (b), (c) and (d) deal with extensions of time under § 1.136(a) this authorization should be made only with the knowledge that: "Submission of the appropriate extension fee under 37 C.F.R. 1.136(a) is to no avail unless a request or petition for extension is filed." (Emphasis added). Notice of November 5, 1985 (1060 O.G. 27).

- ☐ 37 CFR 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 CFR 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 CFR 1.311(b).

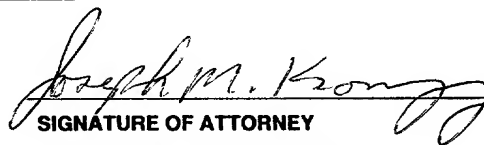
NOTE: 37 CFR 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . issue fee". From the wording of 37 CFR 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

16. Instructions As To Overpayment

- ☒ credit Account No. 05-0208
☐ refund

Reg. No. 35.806

Tel. No. (610) 935-2300



SIGNATURE OF ATTORNEY

JOSEPH M. KONIECZNY

Type or print name of attorney
P.O. BOX 750

P.O. Address
VALLEY FORGE, PA 19482-0750

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☐ **Incorporation by reference of added pages**

Check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED

- ☐ Plus Added Pages For New Application Transmittal Where Benefit Of Prior U.S. Application(s) Claimed

Number of pages added _____

- ☐ Plus Added Pages For Papers Referred To In Item 4 Above

Number of pages added _____

- ☐ Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added _____

☒ **Statement Where No Further Pages Added**

(If no further pages form a part of this Transmittal then end this Transmittal with this page and check the following item)

- ☒ This transmittal ends with this page.

Applicant or Patentee: James W. Kenney
Serial or Patent No.:
Filed or Issued: Concurrently herewith
For: PIPETTE GUN AND HOLSTER ASSEMBLY

**VERIFIED STATEMENT (DECLARATION) CLAIMING
SMALL ENTITY STATUS (37 CFR 1.9(B) and 1.27(c))
SMALL BUSINESS CONCERN**

I hereby declare that I am

- ☐ the owner of the small business concern identified below:
- ☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: Drummond Scientific Company
ADDRESS OF CONCERN: Five Hundred - Parkway
Broomall, Pennsylvania 19008

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 37 CFR 1.9(b), and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled PIPETTE GUN AND HOLSTER ASSEMBLY by inventor(s) James W. Kenney described in

- ☒ the specification filed herewith.
- ☐ application serial no. _____, filed _____
- ☐ patent no. _____, issued _____.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME _____
ADDRESS _____

☐ INDIVIDUAL

☐ SMALL BUSINESS CONCERN

☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

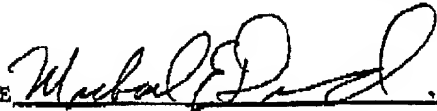
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: Michael E. Drummond

TITLE OF PERSON OTHER THAN OWNER: Secretary

ADDRESS OF PERSON SIGNING: Five Hundred - Parkway
Broomall, PA 19008

SIGNATURE



DATE

5/27/99

CERTIFICATE OF EXPRESS MAILING UNDER 37 C.F.R. § 1.10

I hereby certify that this correspondence and the documents referred to as attached therein are being deposited today with the United States Postal Service as postage-prepaid "Express Mail Post Office to addressee" service in an envelope bearing Express Mail Label EE691886990US and addressed to the: Commissioner of Patents and Trademarks, Washington, DC 20231.

Date

5/28/99

Joseph M. Konieczny
Registration No. 35,806**Pipette GUN AND HOLSTER ASSEMBLY****Inventor: James W. Kenney****Field of the Invention**

The present invention relates to a pipette gun and holster assembly which can be mounted on a vertical surface above or proximate a horizontal work table.

Background of the Invention

On an average day, a pipette gun may be used to meter hundreds of fluid samples. Inevitably, while using the pipette gun, a laboratory technician will be interrupted for a variety of reasons and must suspend use of the pipette gun. If the pipette gun assembly is set down on a table top, the pipette may become contaminated if it contacts the table top. Further, the sample fluid contained in the pipette may run out of the pipette if the pipette gun is set down flat on its side on the table top. Therefore, it would be desirable to provide a stand in which the pipette gun and pipette can be parked while not in use and which prevents contamination of the pipette or spillage of fluid from the pipette when the pipette gun is parked

in the stand.

U.S. Patent No. 5,616,871 (Kenney '871),
incorporated herein by reference, describes a pipette
stand which supports the pipette gun and pipette in an
upright position on a table top so that the pipette
does not contact the table top and so that any liquid
in the pipette does not spill out of the pipette or
flow back up through the pipette into the pipette gun.
The pipette stand disclosed in Kenney '871 is only
useful, however, if there is available space on the
table top on which the pipette stand may be rested.
Too often the table top is overly crowded with
scientific apparatus. Therefore, it would be desirable
to provide a pipette gun stand which can be mounted on
the unobstructed vertical walls surrounding or
proximate the table top.

In many laboratories, a pipette gun is used
continuously for several hours by a technician. Over
time, the weight of the pipette gun causes fatigue to
the technician. For example, a pipette gun having an
internal air pressure source may weigh up to 12 ounces.
Prior art pipette guns having a remote, external air
pressure source are lighter and reduce fatigue.
However, the elastomeric tubing connecting the remote
air source to the pipette gun is cumbersome and often
interferes with the work area. Therefore, it would be
desirable to provide a pipette gun having a remote air
source and an elastomeric tubing design which does not

interfere with the work area.

In order to deactivate the remote, external air pressure source for a short period of time while the pipette gun is not in use, the source must be switched off manually by either unplugging the air pressure source or flipping an external switch on the air pressure source. Because it is inconvenient to repeatedly turn the air pressure source off and on, technicians typically leave the air pressure source activated even while the pipette gun is not in use. Continuously running the remote air source greatly shortens its life-span. Therefore, it would be desirable to provide a pipette gun having a remote air source which is automatically activated and inactivated when the pipette gun is removed from and inserted into, respectively, the pipette gun holder so that the life-span of the remote air pressure source can be extended.

Summary of the Invention

The present invention provides a pipette gun and holster apparatus having an external source of air pressure. The holster can be mounted on the unobstructed vertical walls surrounding or proximate the table top. The pipette gun and pipette can be parked in the holster while not in use, thereby preventing contamination of the pipette or spillage of fluid from the pipette when the gun is parked in the holster.

The remote air source is connected to the pipette gun with a recoiling, elastomeric tubing which does not interfere with the work area. In one embodiment, the remote air source is automatically activated and inactivated when the pipette gun is removed from and inserted into, respectively, the holster so that the life-span of the remote air pressure source is extended.

The apparatus of the invention generally comprises a pipette gun having a remote source of positive and negative air pressure, and a gun holster. The holster is constructed and arranged to support the gun above a work table with the pipette connector oriented generally, vertically downwardly.

The pipette gun has an external, flexible conduit connecting the gun to the remote air pressure source. The pipette gun housing has a hand grip portion and a barrel portion oriented transverse to the hand grip portion. A pipette connector is fixed to and oriented transverse to the barrel portion. An internal conduit is connected to the external flexible conduit and the pipette connector. A valve is located intermediate the internal conduit and is constructed and arranged to selectively regulate the flow of either positive air pressure or negative air pressure through the internal conduit to the pipette connector. A positive air flow trigger and a negative air flow trigger are connected to the valve.

The holster has a base and means for fastening the base to a vertical wall. A mounting bracket is fixed to and extends transverse to the base. The bracket has a bottomless socket constructed and arranged to receive and removably hold the gun by inserting the pipette connector into the socket. The base is removably attached to a vertical surface by suction cups, velcro tabs, magnets, or other releasable fasteners.

The external conduit comprises two-channel plastic tubing having a recoiling portion.

One end of the recoiling portion is connected to the gun and the other end of the recoiling portion is connected to the base. The external conduit also has a non-recoiling portion extending from the base to the air pressure source. A male prong connector is fixed to the base for removably joining the recoiling portion and non-recoiling portion of the external conduit.

In one embodiment, the mounting bracket comprises a pair of forks having a base end and a plurality of prongs. The base end of the forks is fixed to the holster base at vertically-spaced locations.

The socket is circular and is formed in between the prongs of each of the forks. The socket has a diameter DS larger than the distance between the prongs DP of the forks.

The pipette connector may have a constant outer diameter DC which is less than DS but greater than DP. In this embodiment, the diameter of the socket DS is

greater than DC and the distance between the prongs DP is less than DC.

5 In another embodiment of the invention, the pipette connector has a frusto-conical shape and having a maximum outer diameter DC1 and a minimum outer diameter DC2. In this embodiment, the diameter of the socket DS1 and the distance between the prongs DP1 of the first fork is greater than the diameter of the socket DS2 and the distance between the prongs DP2 of the second fork, respectively. In this embodiment, DC1 is greater than DP1, DP2 and DS2 but less than DS1. DC2 is greater than DP2 but less than DS1, DP1 and DS2.

10 In one embodiment of the invention, the remote air pressure source is fixed to the base. A first switch is located proximate the socket. The switch regulates the flow of power to the remote air source. The first switch deactivates the remote air source when the pipette gun is parked in the holster. The switch also energizes the remote air source when the gun is removed from the holster. The apparatus may also include a second switch which deactivates the remote air source independent of the first switch.

20 A mounting pad removably fixes the external air pressure source to either a vertical or horizontal surface. The mounting pad has a layer of vibration-absorbent material, means for permanently fixing the pad to either a vertical or horizontal surface, and means for removably fixing the remote air pressure

25

source to the pad. In one embodiment, the permanent fixing means comprises a layer of adhesive and the removable fixing means comprises Velcro tab fasteners. The mounting pad may also have a plurality of bores arranged to align with the feet on the remote air source.

The present invention also provides a method of metering fluid using a pipette gun. A pipette gun having a remote air pressure source and holster assembly are provided. The holster is removably fastened to a vertical surface. The pipette gun is supported above a work table with said pipette connector oriented generally, vertically downwardly by parking the pipette gun in the holster. The pipette gun is removed from the holster and fluid is metered with the gun. The external air pressure source is automatically inactivated when the pipette gun is parked in the holster and automatically activated when the pipette gun is removed from the holster.

Brief Description of the Drawings

Fig. 1 is a perspective view of a pipette gun and holster apparatus in accordance with an embodiment of the invention;

Fig. 2 is a side elevational view of the pipette gun and holster of Fig. 1 without the remote air pressure source;

Fig. 3 is a front elevational view of a laminar

flow hood outfitted with the pipette gun and holster apparatus of Fig. 1 showing the pipette gun parked in the holster;

Fig. 4 is a front elevational view of a laminar flow hood outfitted with the pipette gun and holster apparatus of Fig. 1 showing the pipette gun removed from the holster and held by a technician;

Fig. 5 is a perspective view of a pump mounting pad in accordance with an embodiment of the invention;

Fig. 6 is a side elevational view of a pump attached to the pump mounting pad of Fig. 5 which is fixed to a horizontal surface;

Fig. 7 is a side elevational view of a pump attached to the pump mounting pad of Fig. 5 which is fixed to a vertical surface;

Fig. 8 is a perspective view of another pipette gun and holster apparatus in accordance with an embodiment of the invention; and,

Fig. 9 is a front elevational view of the holster of the apparatus of Fig. 8 and a universal ad/dc adapter.

Detailed Description of Preferred Embodiments

Preferred embodiments of the invention are described below with reference to Figs. 1-9 wherein like reference numerals are used throughout to designate like elements.

An embodiment of a pipette gun and holster

apparatus of the present invention, designated generally by reference numeral 10, is illustrated in Figs. 1-7. The apparatus 10 generally comprises a pipette gun 12, a holster 14, and a remote source of positive and negative air pressure 16. The holster 14 is constructed and arranged to be mounted to a vertical surface above or proximate a work table top 4, and to support the pipette gun 112 above the table top 4 with the pipette oriented generally, vertically downwardly, as best seen in Fig. 2.

The pipette gun 12 has an external, flexible conduit 18 connecting the pipette gun 12 to the remote air pressure source 16. The housing 20 of the pipette gun 12 has a hand grip portion 20a and a barrel portion 20b oriented transverse to the hand grip portion 20a. A pipette connector 22 is fixed to and oriented downwardly transverse to the barrel portion 20b. The pipette connector is constructed and arranged to removably attach pipettes 24 of various lengths and diameters.

An internal conduit 26 connects the external flexible conduit 18 to the pipette connector 22. A valve 28 is located intermediate the internal conduit 26. The valve 28 is constructed and arranged to selectively regulate the flow of either positive or negative air pressure through the internal conduit 26 to the pipette connector 22. A positive air flow trigger 30 and a negative air flow trigger 32 are

connected to the valve 28 and extend outwardly from the handle portion 20b of the housing 20.

5 In the embodiment illustrated in Figs. 1-7, the external flexible conduit 18 comprises two separate conduits which are connected to each other on the external surface. The conduit 18 has a recoiling portion 18a and a non-recoiling portion 18b. The recoiling portion 18a is connected at one end to the internal conduit 26 of the pipette gun 12 proximate the top of the hand grip portion 20a of the housing 20. The other end of the recoiling portion 18a is connected to a male prong connector 34 fixed to the top of the base of the holster 14. When the holster 14 is mounted on a vertical wall 6 above the table top 4, the recoiling conduit portion automatically retracts to prevent the flexible conduit 18 from interfering with objects supported on the table top 4. Further, the recoiling portion 18a of the flexible conduit 18 slightly biases the pipette gun 12 upwardly when the pipette gun 12 is removed from the holster 14, thereby effectively reducing the weight of the gun and reducing fatigue on the operator.

20 One end of the non-recoiling portion 18b of the flexible conduit 18 is connected to the male prong connector 34. The other end of the non-recoiling portion 18b is connected to the remote air source 16. In the embodiment illustrated in Figs. 1-2, the non-recoiling portion 18b of the flexible conduit 18

extends downwardly parallel to the length of the holster 14 and through the holster forks 42,44.

The holster 14 is constructed and arranged to be removably fixed to a vertical surface or wall 6 and to support the pipette gun 12 above the table top 4 with the pipette 24 oriented generally, vertically downwardly such as illustrated in Fig. 2. The holster 14 has a generally flat, rectangular base 36, fasteners 40 which removably fix the base 36 to the vertical wall 6, and a pair of forks 42, 44, fixed to and extending transverse to the base 36. Each fork 42, 44 has a bottomless socket constructed and arranged to receive and removably hold the pipette gun 12 by inserting the pipette connector 22 into the sockets 46, 48.

In the embodiment illustrated in Figs. 1-7, the base 36 comprises a thin metal sheet. The fasteners 40 are preferably fixed to the backside of the base 36 and may comprise magnets or velcro tabs, such as illustrated in Figs. 1 and 2, or suction cups 140 such as illustrated in Figs. 8 and 9.

Referring to Figs. 1 and 2, each fork 42,44 has a base end 42a,44a fixed to the base, and a pair of prongs 42b,44b. The forks 42,44 are fixed to the bottom end of the base 36 at vertically-spaced locations. Each fork 42,44 has a circular socket 46,48, respectively, formed in between the prongs of each fork 42,44, respectively. The diameter of the first socket DS1 and second socket DS2 are both larger

than the distance DP between the prongs of the respective forks 42,44. The distance DP between the prongs of the forks 42,44 is larger than the diameter of the pipette 24.

5 In the embodiment illustrated in Figs. 1-9, the pipette connector 22 has a frusto-conical shape having a maximum outer diameter DC1 and a minimum outer diameter DC2. The diameter of the socket DS1 of the first fork 42 is larger than the diameter of the socket DS2 of the second fork 44 so that the tapered pipette connector 22 will park snugly in the mounting bracket 38. DC1 is greater than DP1, DP2 and DS2 but less than DS1. DC2 is greater than DP2 but less than DS1, DP1 and DS2.

10 An embodiment of the pipette gun and holster apparatus of the invention is illustrated in use with a laminar flow hood 8 in Figs. 3 and 4. Referring to Fig. 3, the pipette gun 12 is parked in the holster 14 which is mounted to the back, vertically-extending wall 6 of the laminar flow hood 8. The remote air source 16 is mounted on a vertically-extending outer surface 9 of the laminar flow hood 8 using a pump mounting pad 50 described below. The pipette gun 12 is shown in Fig. 4 removed from the holster and grasped by a technician.

15 20 25 The embodiment of the invention illustrated in Figs. 1-7 utilizes a remote air pressure source 16 such as a piston pump which often migrates off of the table top due to vibration. The mounting pad 50 of the

present invention secures the pump to either a horizontal table top or a vertically-extending wall. Referring to Figs. 5-7 the pad preferably has a rectangular shape sized to conform to the overall shape and dimensions of well-known piston pumps. The pad 50 has a vibration-absorbing base layer 52, means on the bottom side of the base layer 52 for permanently fixing the pad to either a vertical 5 or horizontal 4 surface, and means on the top side of the pad 50 for removably fixing the pump 16 to the top side of the mounting pad 50. In a preferred embodiment, the permanent fixing means 54 on the bottom of the pad 50 comprises an adhesive layer while the removable fixing means 56 on the top side of the pad 50 comprises mating velcro tabs.

The mounting pad 50 is provided with a plurality of holes or bores 58 which are aligned with and designed to receive the feet 60 of the pump 16. The mounting pad 50 allows the pump 16 to be securely fixed on a horizontal table top 4 such as illustrated in Fig. 6 or on a vertical wall surface 6 such as illustrated in Fig. 7.

Another embodiment of the pipette gun and holster apparatus 110 of the present invention is illustrated in Figs. 8 and 9. The pipette gun 112 illustrated in Figs. 8 and 9 has generally the same construction as the pipette gun 12 illustrated and described above with reference to Figs. 1-7. The pipette gun 112 also has a

recoiling flexible conduit 118a extending from the pipette gun 112 to a male prong connector 134 on the base 136. However, in this embodiment, the remote air pressure source 116 is contained within or integrally formed with the base 136 of the holster 114.

Further, the base 136 includes a first switch 162 proximate the socket 146 of the first fork 142 which regulates the flow of electrical power to the remote air source 116. The first switch 162 inactivates the remote air source 116 when the pipette gun 112 is parked in the holster 114, and activates the remote air source 116 when the pipette gun 112 is removed from the holster 114. Referring to Fig. 8, the first switch 162 is spring-loaded and normally biased upwardly in an "on" position which activates the remote air source 116. When the pipette gun 112 is parked in the holster 114, the pipette connector 122 contacts the first switch 162 and pushes the switch 162 into an "off" position inactivating the remote air source 116. This construction allows the remote air source 116 to run only when the pipette gun 112 is being used by a technician, thereby extending the life of the remote air source 116. The holster 114 may also include a second switch 164 which overrides the first switch in the "off" position to inactivate the remote air source 116.

Since the remote air source is contained with the base 136, the embodiment illustrated in Figs. 8 and 9

does not have a non-recoiling conduit portion extending from the bottom of the base such as illustrated in Figs. 1 and 2. Rather, an electrical power line 166 extends out of the bottom of the base to an ac/dc universal adapter 168.

The present invention also provides a method of metering fluid using the above-described apparatus. While the method is described with reference to the well-known laminar flow hood shown in Figs. 3 and 4, one of ordinary skill in the art will readily recognize that the apparatus 10,110 may be used at any table top having a vertical wall next to or proximate the table top.

The holster 14 is fastened to the vertical back wall of the laminar flow hood. The remote air pressure source 16 is fixed to an outside wall of the hood proximate a power outlet 68. This arrangement maximizes the amount of work space on the table top 4.

When the pipette gun is not in use, the pipette gun is parked in the holster 14 above the table top 4 with the pipette oriented generally, vertically downwardly out of contact with the table top 4. When the pipette gun is needed, the technician easily lifts and removes the pipette gun 12 from the holster 14. The recoiling portion 18a of the conduit 18 remains in a tight arrangement above the table top 4 as best seen in Fig. 4.

If the embodiment illustrated in Figs. 8 and 9 is

used in the laminar flow hood 8, the remote power source 116 is automatically activated when the pipette gun 112 is removed from the holster 114 and automatically inactivated when the pipette gun 112 is parked in the holster 114. In this embodiment, the life-span of the air pressure source 116 is extended since it is only activated when the pipette gun 112 is in use.

Claims:

1. A pipette gun and holster apparatus having a remote source of positive and negative air pressure, said apparatus comprising:

- 5 a) a pipette gun having an external, flexible conduit connecting said gun to said remote air pressure source, said gun including:
- 10 i) a housing having a hand grip portion and a barrel portion oriented transverse to said hand grip portion;
- 15 ii) a pipette connector fixed to and oriented transverse to said barrel portion;
- 20 iii) an internal conduit connected to said external flexible conduit and said pipette connector;
- iv) a valve intermediate said internal conduit constructed and arranged to selectively regulate the flow of either positive air pressure or negative air pressure through said internal conduit to said pipette connector;
- 25 v) a positive air flow trigger and a negative air flow trigger connected to said valve;
- b) a gun holster constructed and arranged to support said gun above a work table with said pipette connector oriented generally, vertically downwardly, said holster including:

- i) a base;
- ii) means for fastening said base to a vertical wall;
- iii) a mounting bracket fixed to and extending transverse to said base, said bracket having a bottomless socket constructed and arranged to receive and removably hold said gun by inserting said pipette connector into said socket.

2. The apparatus recited in claim 1, said external conduit comprising two-channel plastic tubing having at least a portion of which is recoiling.

3. The apparatus recited in claim 2, one end of said recoiling portion being connected to said gun and the other end of said recoiling portion being connected to said base.

4. The apparatus recited in claim 3, said external conduit including a non-recoiling portion extending from said base to said air pressure source.

5. The apparatus recited in claim 4, including a male prong connector fixed to said base for removably joining said recoiling portion and non-recoiling portion of said external conduit.

6. The apparatus recited in claim 1, said attaching means comprising suction cups, velcro tabs, or magnets.

5 7. The apparatus recited in claim 1, said mounting bracket comprising a pair of forks having a base end and a plurality of prongs, the base end of said forks being fixed to said holster base at vertically-spaced locations.

10 8. The apparatus recited in claim 7, said socket being circular and being formed in between the prongs of each of said forks.

9. The apparatus recited in claim 8, said socket having a diameter DS larger than the distance DP between the prongs of said forks.

15 10. The apparatus recited in claim 9, said pipette connector having a maximum outer diameter DC less than DS but greater than DP.

20 11. The apparatus recited in claim 9, wherein the diameter of the socket DS1 and the distance between the prongs DP1 of the first fork is greater than the diameter of the socket DS2 and the distance between the prongs DP2 of the second fork, respectively.

12. The apparatus recited in claim 11, said pipette connector having a frusto-conical shape and having a maximum outer diameter DC1 greater than DP1, DP2 and DS2 but less than DS1.

5 13. The apparatus recited in claim 12, said pipette connector having a minimum outer diameter DC2 greater than DP2 but less than DS1, DP1 and DS2.

10 14. The apparatus recited in claim 1, said remote air pressure source being fixed to said base.

15 15. The apparatus recited in claim 1, including a first switch proximate said socket, said switch regulating the flow of power to said remote air source.

16 16. The apparatus recited in claim 15, said first switch deactivating said remote air source when said gun is parked in said holster, said switch energizing said remote air source when said gun is removed from said holster.

20 17. The apparatus recited in claim 16, including a second switch which deactivates said remote air source independent of said first switch.

18. The apparatus recited in claim 1, including a mounting pad for said external air pressure source.

19. The apparatus recited in claim 18, said mounting pad comprising a layer of vibration-absorbent material, means for permanently fixing said pad to either a vertical or horizontal surface, and means for removably fixing said remote air pressure source to said pad.

20. The apparatus recited in claim 19, said permanent fixing means comprising a layer of adhesive, said removable fixing means comprising Velcro tab fasteners.

21. The apparatus recited in claim 19, including a plurality of bores arranged to align with feet on said remote air source.

22. A holster for supporting a pipette gun on a vertical surface above or proximate a table top, said pipette gun having a negative and positive air pressure source, pipette connector and a pipette attached to said connector, said holster comprising:

- a) a base;
- b) means for fastening said base to a vertical wall;
- c) a mounting bracket fixed to and extending transverse to said base, said bracket having a bottomless socket constructed and arranged to receive and removably hold said gun by inserting

said pipette connector into said socket,
wherein said holster supports said gun above a work
table with said pipette connector oriented generally,
vertically downwardly.

5 23. The holster recited in claim 22, including a
first switch proximate said socket, said first switch
regulating the flow of power to said air source, said
first switch constructed and arranged to deactivate
said air source when the pipette gun is parked in said
10 holster and to energize said air source when the
pipette gun is removed from said holster.

15 24. The holster recited in claim 23, said
mounting bracket comprising a pair of forks having a
base end and a plurality of prongs, the base end of
said forks being fixed to said holster base at
vertically-spaced locations, said socket being circular
and being formed in between the prongs of each of said
forks.

20 25. The apparatus recited in claim 24, said
socket having a diameter DS larger than the distance DP
between the prongs of said forks, said pipette
connector having a maximum outer diameter DC less than
DS but greater than DP.

26. The apparatus recited in claim 24, wherein

the diameter of the socket DS1 and the distance between the prongs DP1 of the first fork is greater than the diameter of the socket DS2 and the distance between the prongs DP2 of the second fork, respectively.

5 27. The apparatus recited in claim 26, said pipette connector having a frusto-conical shape, a maximum outer diameter DC1 greater than DP1, DP2 and DS2 but less than DS1, and a minimum outer diameter DC2 greater than DP2 but less than DS1, DP1 and DS2.

10 28. The apparatus recited in claim 22, said remote air pressure source being fixed to said base.

15 29. A method of metering fluid using a pipette gun, comprising the steps of:

20 a) providing a pipette gun having a remote air pressure source and holster assembly, said holster having a base, means for fastening said base to a vertical, a mounting bracket fixed to and extending transverse to said base, said bracket having a bottomless socket;

 b) removably fastening said holster to a vertical surface next to or proximate a horizontal work table top;

25 c) parking the pipette gun in the holster above the work table with said pipette connector and pipette oriented generally, vertically downwardly out of

contact with the table top;

d) removing said pipette gun from said holster and metering fluid with said gun.

30. The method recited in claim 29, including the step of:

e) automatically inactivating said external air pressure source when said pipette gun is parked in said holster and automatically activating said external air pressure source when said pipette gun is removed from said holster.

31. A mounting pad for an external positive and negative air pressure pump for a pipette gun, said mounting pad comprising;

a) a rectangular base layer of vibration-absorbent material, said base layer having a top side and a bottom side;

b) means on the bottom side of said base layer for fastening said pad to either a horizontal or vertical surface;

c) means on the top side of said base layer for removably fastening the pump to said pad.

32. The mounting pad recited in claim 31, said rectangular base having lengthwise and widthwise dimensions approximately equal to the lengthwise and widthwise dimensions of the pump.

33. The mounting pad recited in claim 32, said bottom side fastening means comprising a layer of adhesive, said top side fastening means comprising velcro tab fasteners.

5

34. The mounting pad recited in claim 33, including a plurality of bores aligned with and constructed and arranged to receive the feet of the pump.

ABSTRACT OF THE DISCLOSURE

5 A pipette gun and holster apparatus having a remote source of positive and negative air pressure. The holster is constructed and arranged to support the pipette gun above a work table with said pipette connector oriented generally, vertically downwardly.

10 The holster has a base and means for fastening said base to a vertical wall. A mounting bracket is fixed to and extends transverse to the base. The bracket has a bottomless socket constructed and arranged to receive and removably hold the pipette gun by inserting the pipette connector into the socket.

15 A first switch is located proximate the socket. The first switch regulates the flow of power to the air source. The first switch is constructed and arranged to deactivate the air source when the pipette gun is parked in the holster and to energize the air source when the pipette gun is removed from the holster.

20 A method of metering fluid using a pipette gun. The holster is removable fastened to a vertical surface next to or proximate a horizontal work table top. The pipette gun is parked the pipette gun in the holster above the work table with said pipette connector and pipette oriented generally, vertically downwardly out of contact with the table top. The pipette gun is removed from said holster and fluid is metered with the gun. The external air pressure source is automatically inactivated when the pipette gun is parked in the

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holster and automatically activated when the pipette gun is removed from the holster.

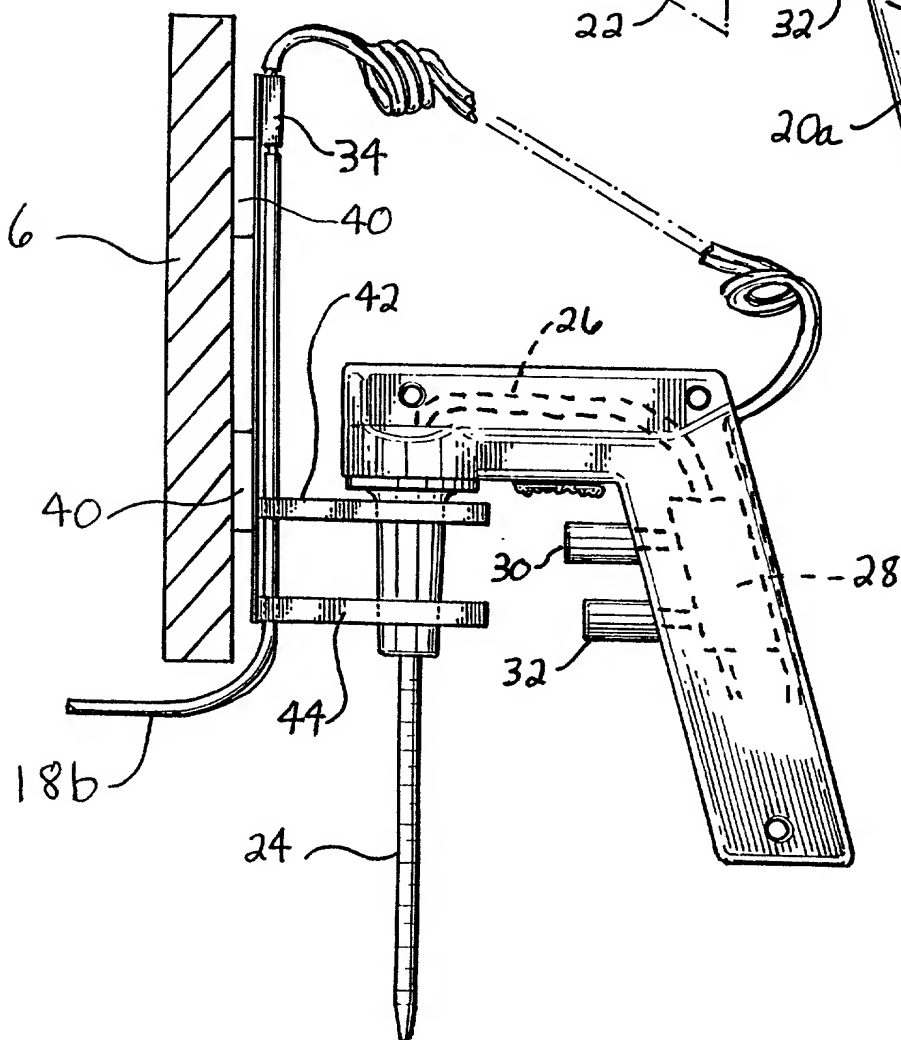
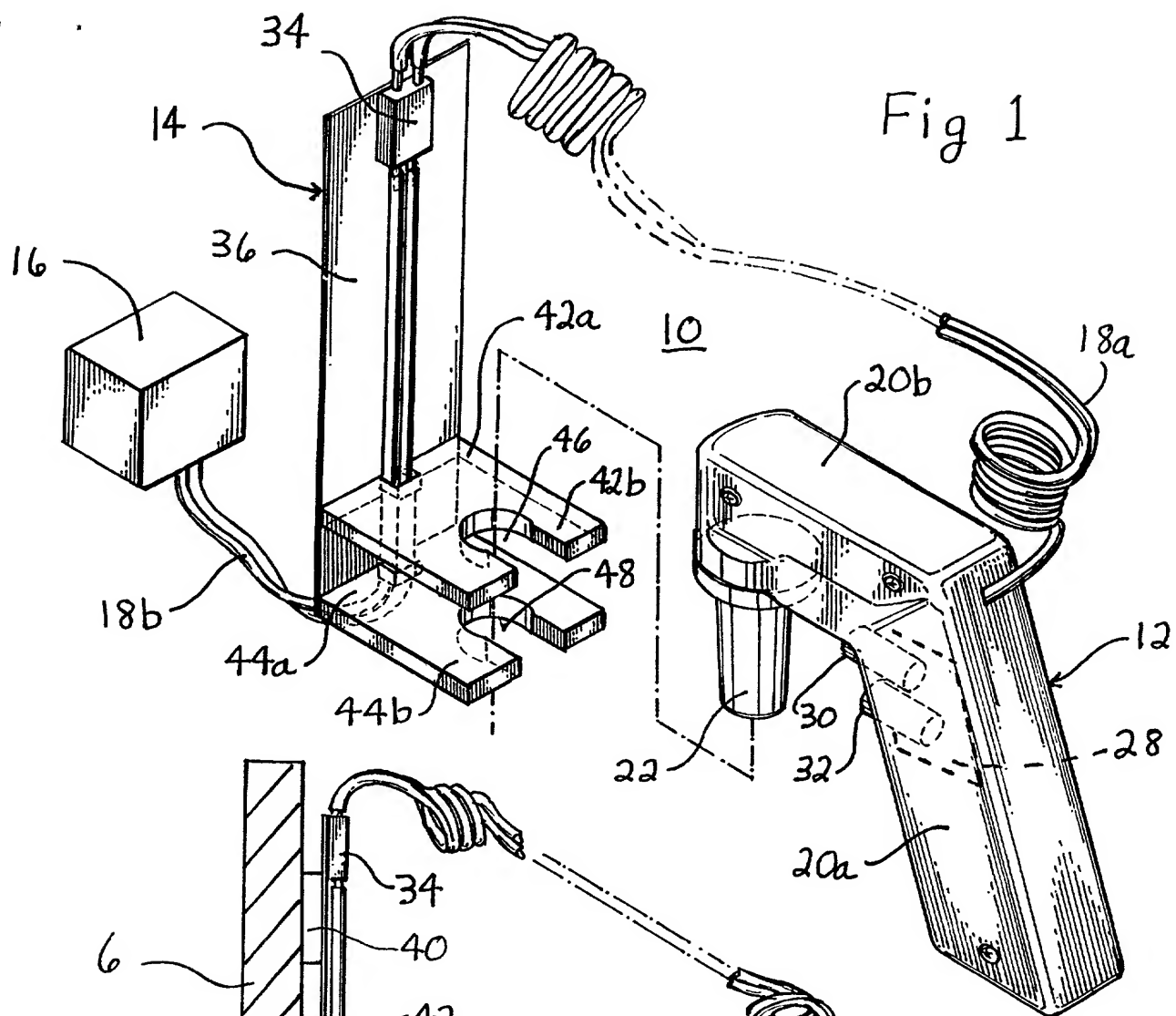


Fig 3

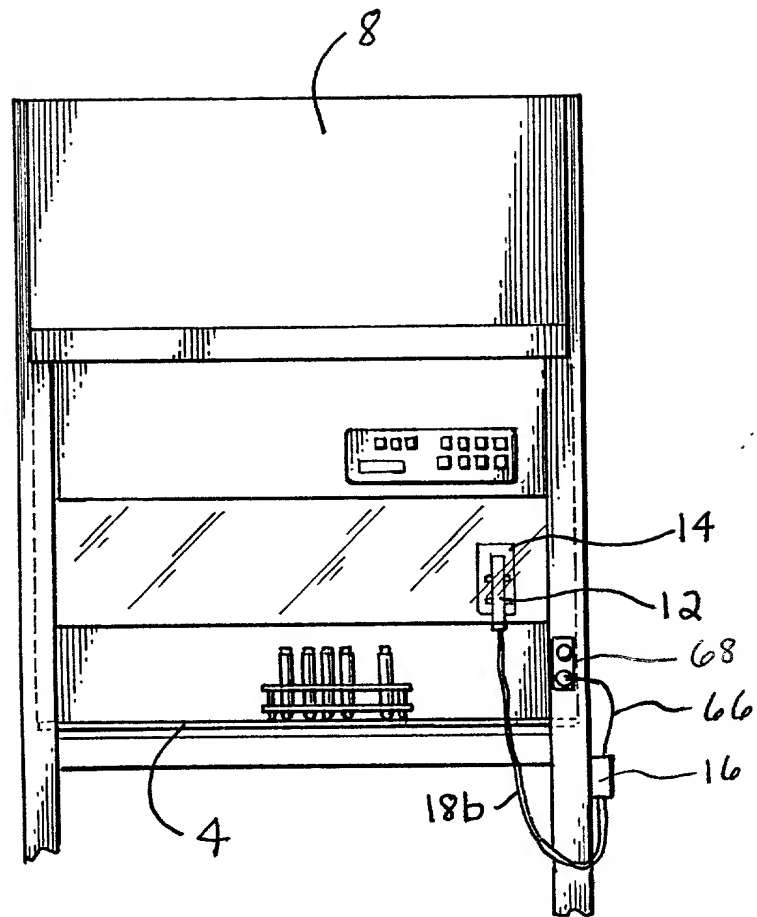


Fig 4

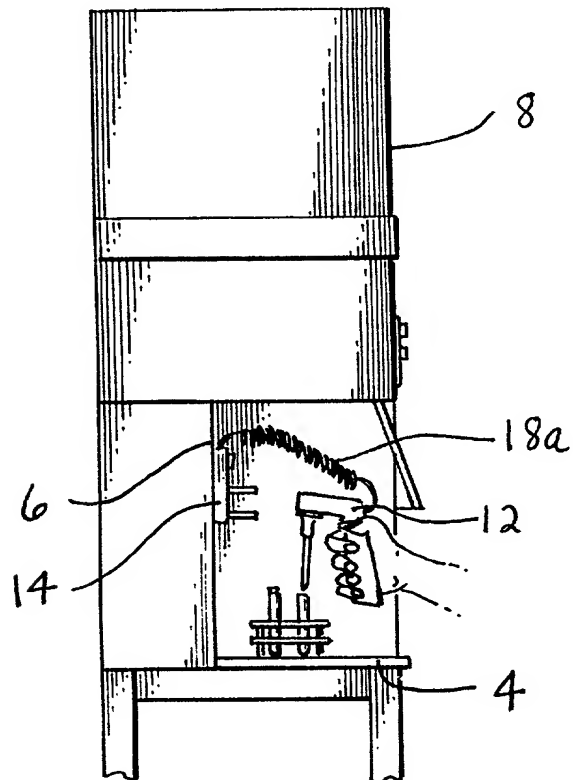


Fig 5

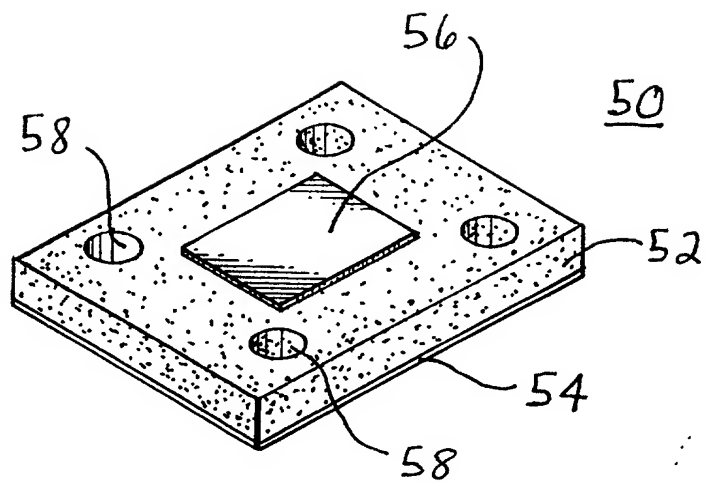


Fig 6

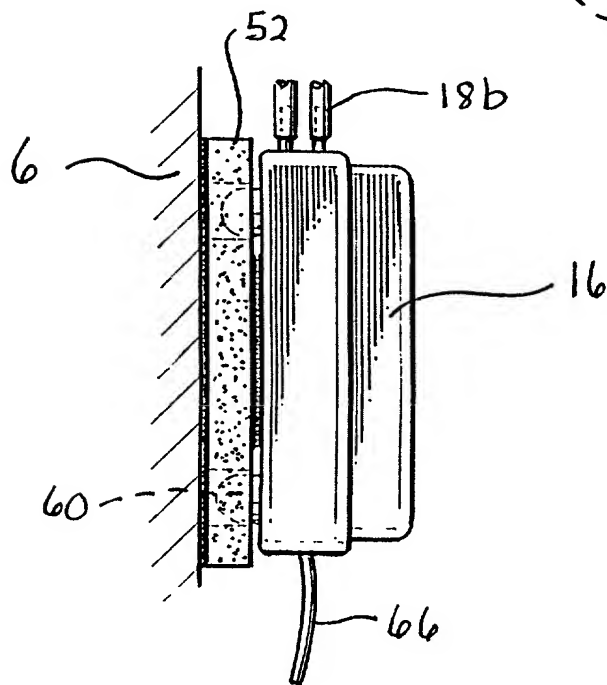
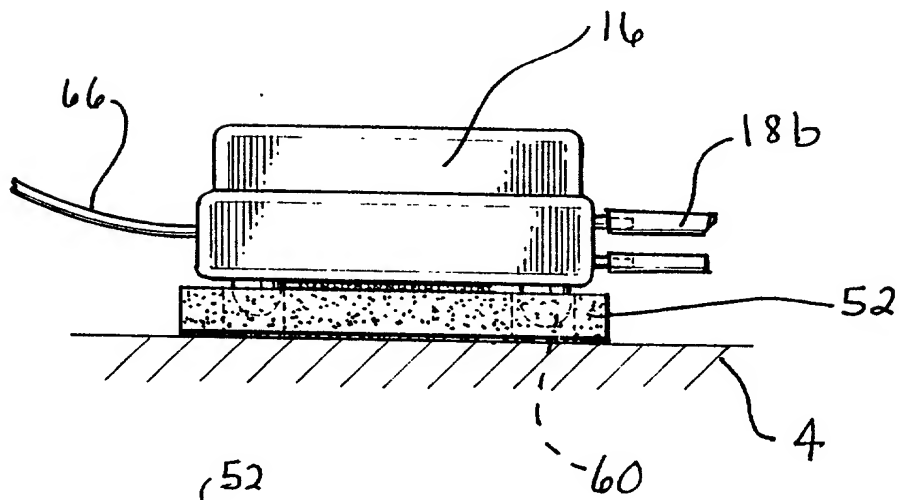
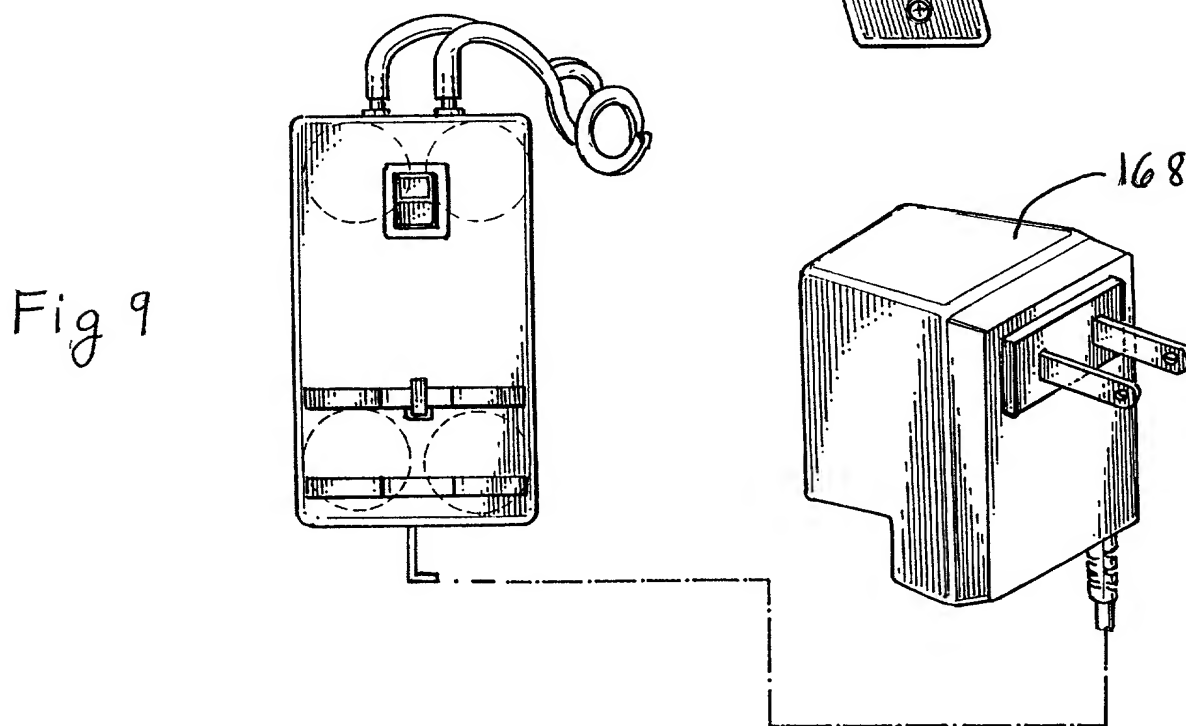
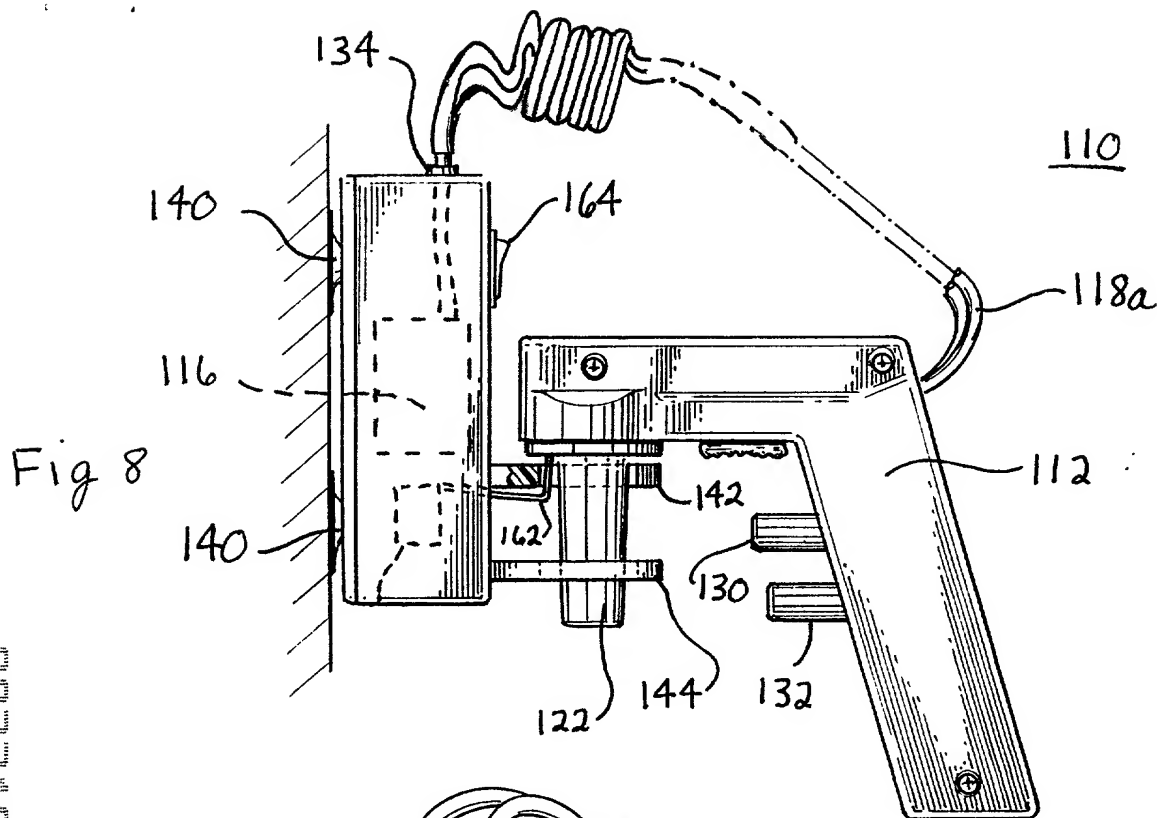


Fig 7



Declaration and Power of Attorney For Patent Application English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PIPETTE GUN AND HOLSTER ASSEMBLY

the specification of which

☒ is attached hereto.

☐ was filed on _____ as
Application Serial No. 0 / _____
and was amended on _____.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			<u>Priority Claimed</u>	
(Number)	(Country)	(Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(Number)	(Country)	(Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(Number)	(Country)	(Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

0 /
(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

0 /
(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY:

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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